

# User manual



# KILOAD<sup>K2</sup>

Version 1 to 2.4.7



Revision manual 08/08/12

## **Caution**

Your Cleral onboard weighing system is a tool. Learning to work with it can only make it more efficient. Read this manual before using your Kiloal.

## **Weigh bridge (certified)**

Acquire the weights needed to calibrate using a certified weigh bridge (Platform scale). Whenever possible, record the weights while sitting on the weigh bridge.

## **Pneumatic connections**

Make sure that all air connections are made according to the installation diagrams.

## **Lift Axles**

Lift axles should always be in the UP position while acquiring and recording the weights in the Kiloal. If the vehicle is equipped with an automatic lift axle activation device, then you must acquire and record the weights while the lift axle is engaged (touching the ground) for both empty and heavy calibration. And use the system with lift axle down.

## **Fuel**

To enhance the performance of your Kiloal, fuel tanks must be full to acquire and record the weights.

## **Air leaks**

A leak in the pneumatic system will falsify the pressure readings for calibration. Thus, you will end up with erratic and false weight readings. You most likely have a leak if the readings are not stable while your vehicle is stationary. A frequent start of the compressor is a good indication of an air leak.

## **Recalibration**

Recalibration is necessary if you have adjusted or replaced a leveling valve or if

you've replaced a mechanical sensor, air transducer, or flexmeters.

## **Slopes**

A slightly sloped terrain will not affect the accuracy of your scale, but the bigger the inclination the higher the error margin. Learning to work with your Cleral system will ultimately give you better precision in these conditions.

## **Technical Support**

For technical help, consult your local authorized Cleral dealer.

## **Warranty**

Cleral products are warranted against defects in workmanship for a period of one year from the original date of purchase. The defective covered product will be repaired or replaced by the manufacturer. The defective product needs to be sent by your local dealer to Cleral with proof of purchase. This warranty does not cover injury or damages caused by the use of this product. It also does not cover all costs connected with the replacement part ( labor, shipping and handling or other). Cleral will not be liable for fines issued for overweight violations while using its products.

Contact your local Cleral dealer for repairs and replacement parts.

Thank you for choosing and trusting  
CLÉRAL CANADA

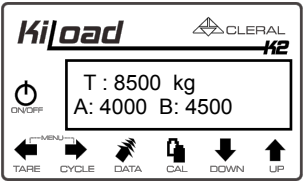
## **To contact Cleral Inc.**


CLERAL INC.  
90, des Distributeurs  
Val-d'or (Quebec) Canada  
J9P 6Y1  
Tel: (819) 825-5553  
fax: (819) 825-5556  
email: [info@cleral.com](mailto:info@cleral.com)  
Web: [www.cleral.com](http://www.cleral.com)


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# Keypad Description





 ON/OFF On/Off main power

 CAL Access to the calibration menu

 TARE To perform empty Tare or To back up while in menus


 DOWN Lower values or Down while in the menu


 UP Raise values or Up while in the menu


 CYCLE Change channel, right in the menu or confirm

 DATA Transmit data by RS232 or print

 TARE CYCLE Access to menu

 DOWN UP Quick click will Freeze while in Total mode (Main screen)

 DOWN UP Click and hold will Pause while in Total mode (Main screen)

 DOWN UP Quick click, while in calibration mode, resets to 0,00

**A:** Letter A followed by a colon (:) Represents channel A

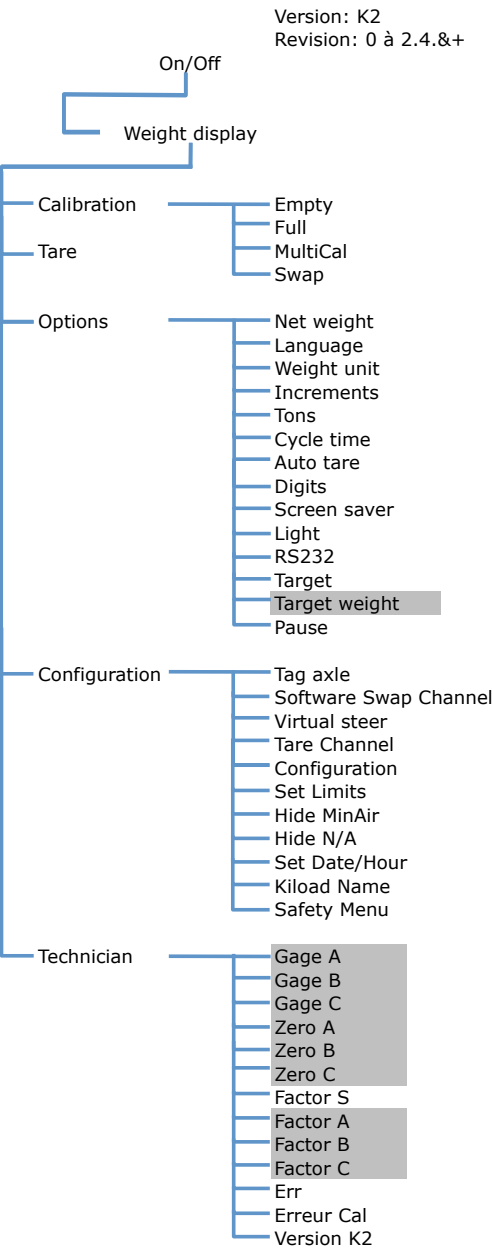
**B:** Letter B followed by a colon (:) Represents channel B

**C:** Letter C followed by a colon (:) Represents channel B

**T:** Letter T followed by a colon (:) Represents the total of all activated channels

# Kiload's Flow chart

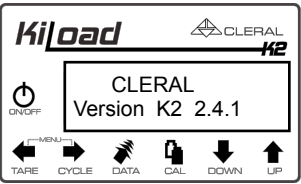
Menus and sub-menus.



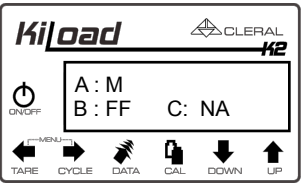
Visible if activated channel

# Turning the unit On

When turning the K2 On, the software version is displayed.



Subsequently, the system configuration appears.



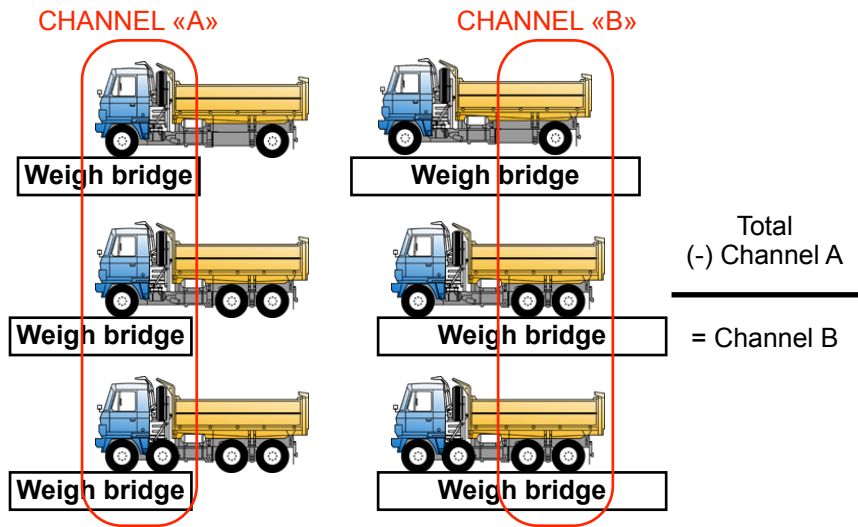
The sensor type is displayed for each channel.

Sensor description:  
M: Mechanical sensor  
F: Flexmeter  
A: Air sensor  
NA: Non Activated

Note the number of letters on the same channel corresponds to the number of sensors used to instrument the channel.

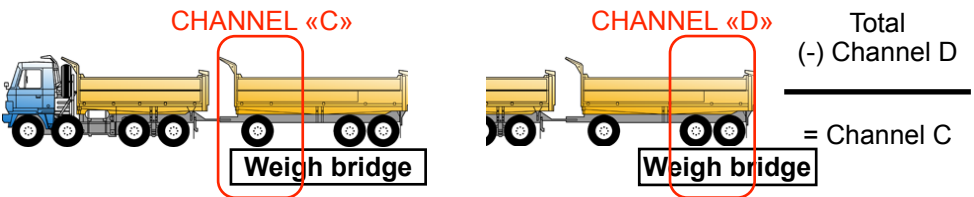
# Acquiring straight body truck weights 4X2 6x4 and 8x4

The first step in the calibration of a straight body truck is to weigh the steering axle (Channel A). The next step is to weigh the entire vehicle (Total weight) Then determine the weight of the drive axle(s) (ChannelB) by doing the math.

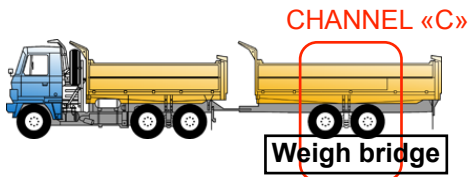


## Acquiring trailer weights

After weighing the truck, the next step is to weigh the total weight of the trailer and then weigh the rear axle group (Channel D), Do the math to determine Channel C.

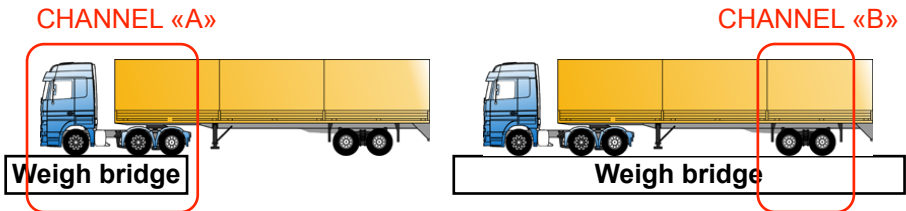


If the trailer has central axle group, simply weigh the whole group and record in Channel C



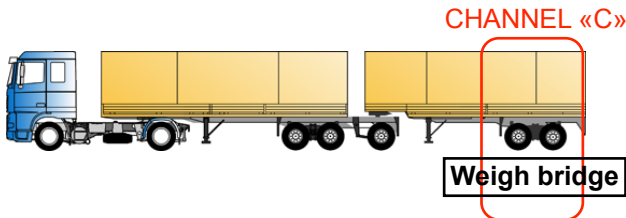
# Acquiring tractor-trailer weights

The first step is to weigh the tractor (Channel A) then weigh the entire rig (Total). The difference between the total weight and the weight of channel A is the weight of the semi-trailer (Channel B).



## Acquiring additional trailer weight

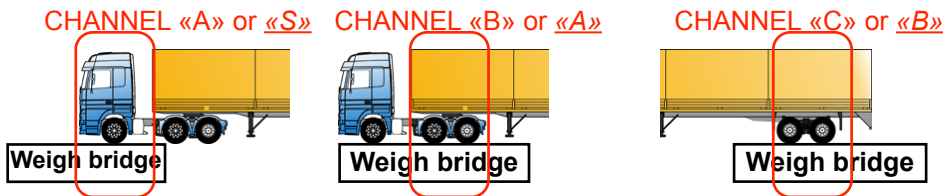
Simply weigh the additional trailer alone (Channel C)



## Acquiring steering axle weight ( Instrumented or Virtual)

The first step is to determine the weight of the steering axle (Channel A or S) and then weigh the tractor. The tractor weight minus the weight of the steering axle gives you the weight of the drive axle(s) (Channel B). The weight of the trailer is acquired by weighing only the semi-trailer or by taking the total weight of the rig and subtracting the total weight of the tractor (T-(A or S + B))

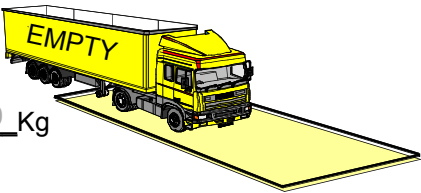
If the steering axle is instrumented : CHANNEL A B C  
If the steering axle is virtual : CHANNEL S A B



# Calibration: Empty weights

## Acquiring empty vehicle weights

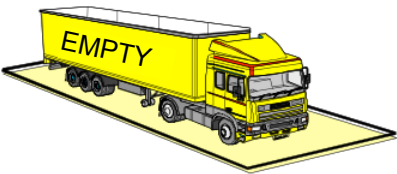
Move the empty tractor onto the platform until the trailer wheels are close but not touching the platform.



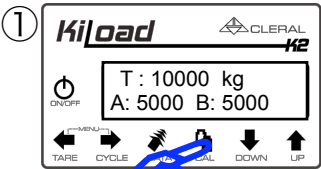
Note the empty tractor weight: Ex: 13000 Kg

Move the Total rig on the platform

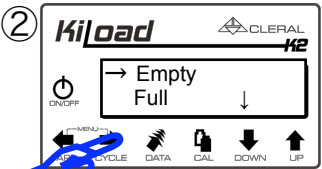
Total weight : Ex: 20500kg  
Empty tractor weight (-) : Ex: 13000kg  
Empty trailer weight : Ex: 7500kg



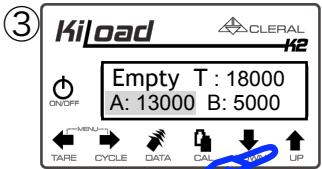
## Recording empty weight values



Press CAL to enter in calibration mode.

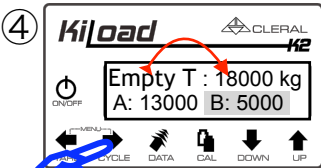


The cursor shows empty, press Right Arrow to enter the menu

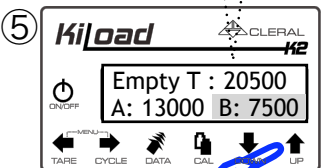


«A:» flashes. Use the arrows to record channel A empty weight.

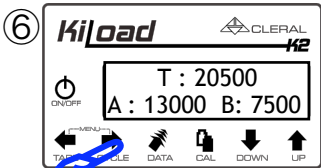
**Note!**  
If the weight of the tractor is ok, you can adjust the weight of the trailer using the weight total.



Press Right arrow to go to «B:».



«B» flashes. Use the arrows to record channel B empty weight.



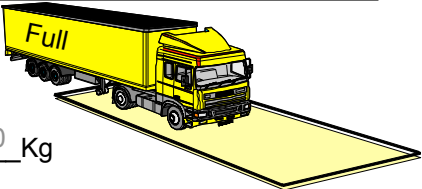
Press Right arrow to confirm and exit.



# Calibration: Full weights

## Acquiring Full weights

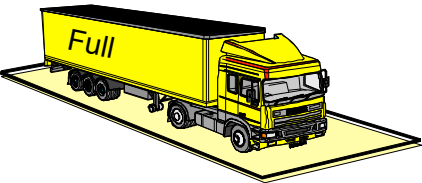
Move the Full tractor onto the platform until the trailer wheels are close but not touching the platform.



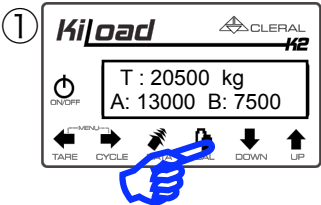
Note the Tractor Full weight : Ex: 23000 Kg

Move the Total rig on the platform.

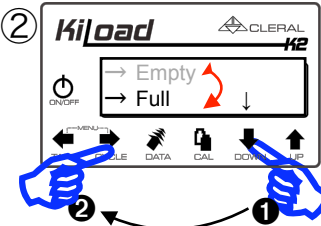
          Total Full weight           : Ex: 57000 kg  
          Full tractor weight (-)      : Ex: 23000 kg  
          Full trailer weight:         : Ex: 34000 kg



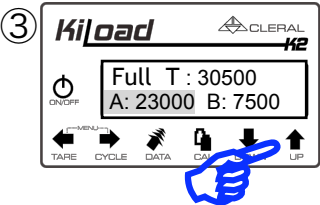
## Recording Full weight values



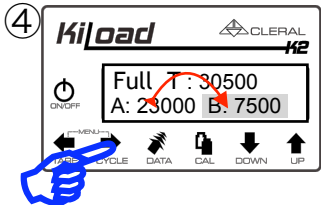
Press CAL to enter in calibration mode.



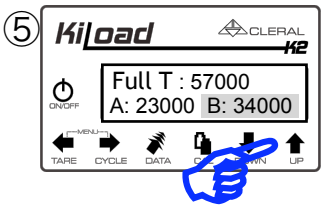
The cursor is on empty, press Down arrow to move the cursor to Full and Right Arrow to enter the menu.



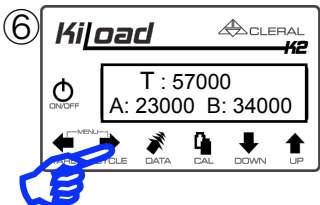
«A» flashes. Use the arrows to record Channel A Full



Press Right to go to Channel B.



«B» flashes. Use arrows to record Channel B Full



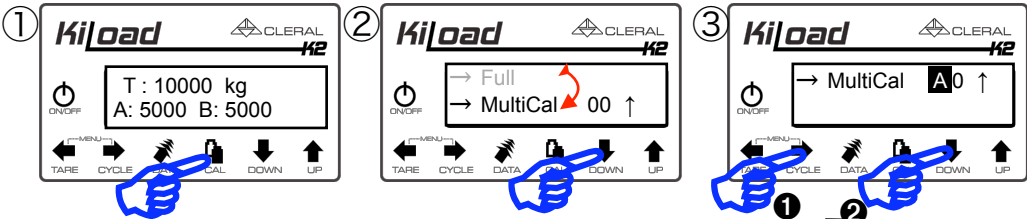
Press Right to confirm and exit.

**Note!** Remember that to obtain maximum accuracy, you must load the vehicle as full as you can legally do so, be on level ground with the steering wheels perfectly aligned to the vehicle and avoid using the parking brakes.

# Multi-calibration

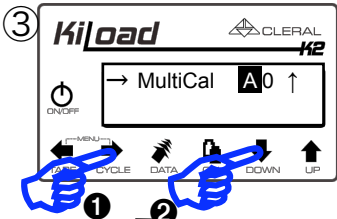
## Activation of one or more channels in MultiCal

When the suspension has a nonlinear effect, the Multi-calibration is used. The algorithm of this function increases the accuracy.

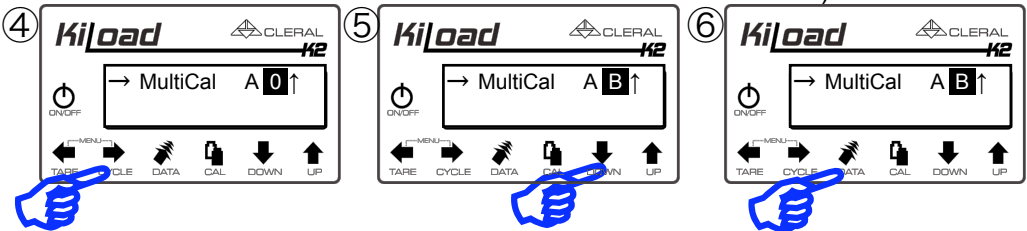


To enable this feature, press CAL to enter the calibration menu.

With the arrow move the cursor to Multi Cal.



Press Right arrow. The first letter will flash. With Down arrow, switch from 0 (not activated) to channel A (Cal Multi-activated on this channel).



For the next channel, press the right Arrow. The next channel flashes.

Press Down Arrow to switch from 0 to channel B. Only enabled channels appear.

To exit press DATA

## Determining calibration points

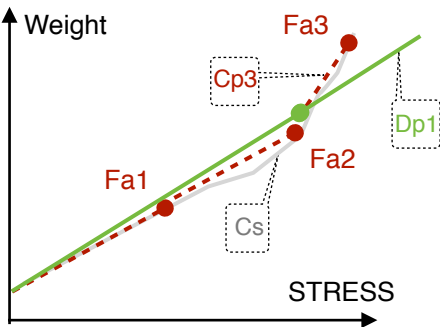
This function requires three FULL calibration points instead of one. Here is how to determine the optimal multicalibration curve.

First, determine the average weight you are carrying on the channel to be calibrated ( $F2 = 14000\text{kg}$ ). Next, determine the weight above the average weight that will never be exceeded ( $F3 = 17\,000\text{ kg}$ ). Then determine the minimum load you would carry ( $Fa1 = 11000\text{kg}$ ). Thereafter, it is necessary to calibrate these three points depending on weight targets.

### Note!

You must respect the legal load limits at all time.

In the case of our example, the curve of Cs suspension illustrates the deformation of the suspension by weight. Dp1 segment represents the calibration curve to a single point. As noted, there are differences in weight between this line and the curve Cs Dp1. The curve is the curve of Cp3 multi-calibration. Note that the differences are considerably reduced.



## Calibrating the 3 points of Multi-Cal

After determining the 3-point loading target, move the loading and calibration of point 1, 2 and 3. **It important to observe the loading progress from lightest to heaviest.**

### IMPORTANT

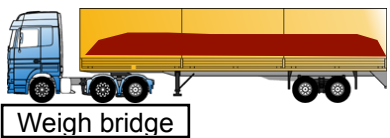
Before doing the MultiCal calibration, it is mandatory to have previously calibrated the empty weights.

### Steps to follow

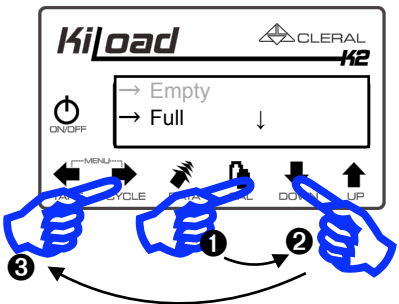
- 1 - Load the truck according to point 1
  - 2 - Go on a platform scale to determine the weights.
  - 4 - Go to the full calibration menu.
  - 5 - Adjust the weight according to point 1
- Repeat these steps for point 2 and 3.

### Example based on channel A

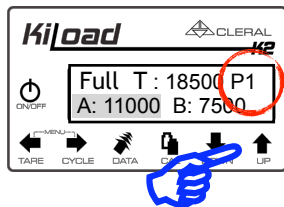
#### Point 1 Load: 11000 kg



On the weigh bridge, press Cal, then Down arrow to select Full. And Right arrow to enter.



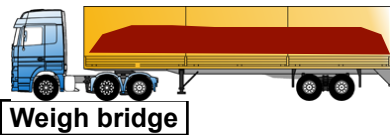
When the cursor is on the channel, use the arrows to record the weight of point 1.



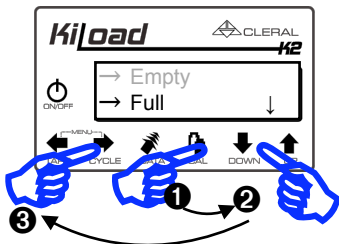
At each calibration point, the display tells you in the right corner, which calibration point you are on.

Get a load for the second calibration point.

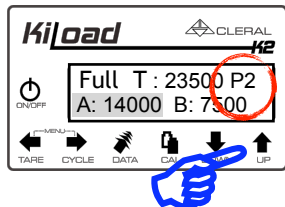
**Point 2 Load: 14000 kg**



On the weigh bridge, press Cal, then Down arrow to select Full. And Right arrow to enter.

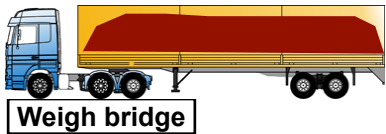


When the cursor is on the channel, with the arrows, record the weight of point 2.

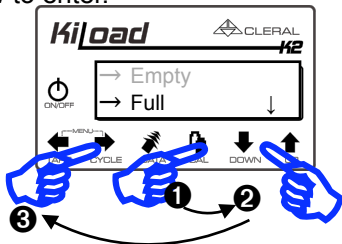


Get a load for the second calibration point  
Get a load for the third calibration point.

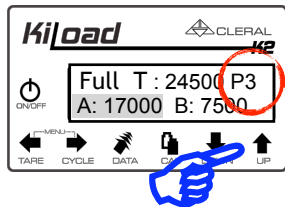
**Point 3 Load: 17000 kg**



On the weigh bridge, press Cal, then Down arrow to select Full. And Right arrow to enter.



When the cursor is on the channel, with the arrows, record the weight of point 3.

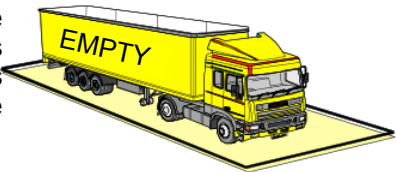


**Important!**  
If your calibration is incorrect, you must repeat the full calibration of the three points (1,2 and 3) in ascending order) calibration.

**Important!**  
If you disabled the multi-Cal, the factor that will be accounted for will be point 2, because it is determined by the maximum legal weight.

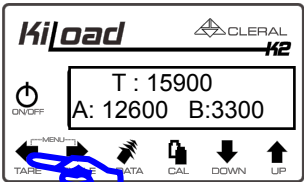
# TARE (Zero)

Tare resets the original weight of the empty truck. To do this, you must be sure that the vehicle is EMPTY and is on as flat a surface as possible or on a weigh bridge. It is recommended that the tare be done when the fuel tank is full.

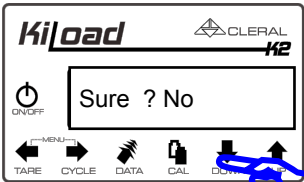


## Tare in Gross mode

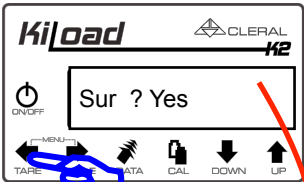
Tare (Zero) the unit while in Gross mode will bring the values back to the original empty weight.



Press Tare.



Press on down arrow to switch from No to Yes.

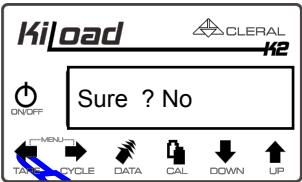


Press on Tare to confirm.

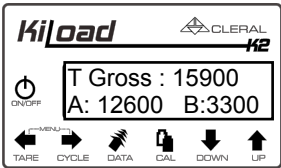
Original value  
T : 16000  
A: 13000 B:3000

## Canceling Tare

If you want to cancel the Zero operation.



Press on Tare to confirm and cancel the operation.



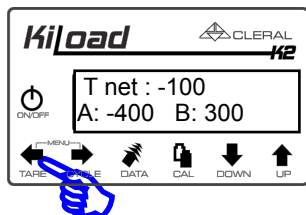
There has been no change of weight values .

### Important !

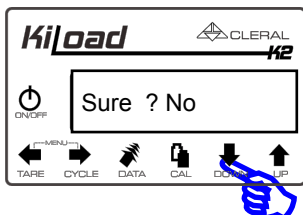
If you have calibrated your vehicle when the fuel tank was full and you perform a zero when it is empty you need to consider that your tank contains 300 litres.

## Tare in Net mode

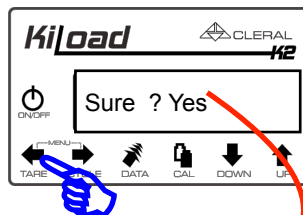
Performing a Tare while in net mode will bring your values to 0,00. No matter how much the vehicle weighs at that moment.



Press Tare



Press on down arrow to switch from No to Yes.



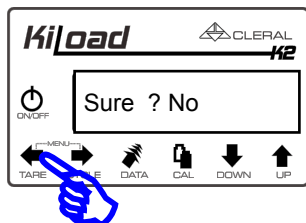
Press on Tare to confirm.

Original value

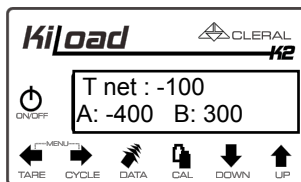
T net : 0
A: 0      B: 0

## Canceling Tare (Zero)

If you want to cancel the Zero operation.



Press on Tare to confirm and cancel the operation.



There has been no change of weight values .

### Important !

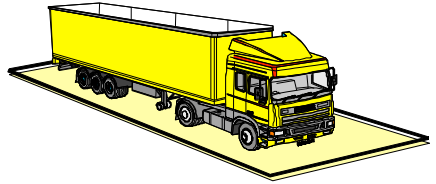
If you have calibrated your vehicle when the fuel tank was full and you perform a zero when it is empty, you need to consider your tank contains 300 litres, you'll find a difference of 240 kg less compared to a weigh bridge (mass diesel 800 kg / m3).

# Freeze

The FREEZE function freezes the sensors readings when it is activated. This allows the operator to calibrate on uneven ground. This function is useful especially when the operator needs to move quickly off the weigh bridge. Here is how to use this function.

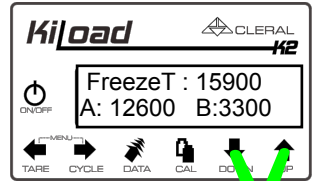
## STEP : 1

Move the complete vehicle on the weigh bridge. Note the weight.



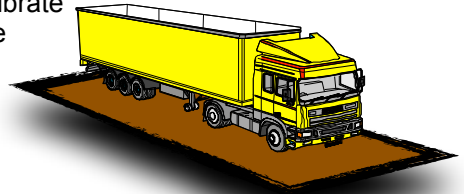
## STEP : 2

Press simultaneously on both arrows once. Freeze will appear. The sensor readings are saved.



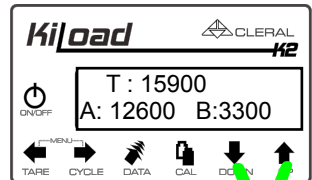
## STEP : 3

You can now leave the weigh bridge to calibrate your scale anywhere. No matter if you are on flat ground or not.



## STEP : 4

Once calibrated, press simultaneously once on both arrows to exit the Freeze mode. This will take you back to the main scree.

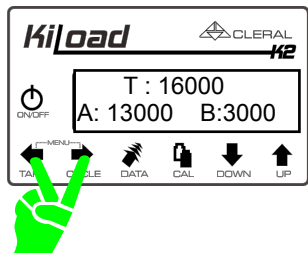


## Note :

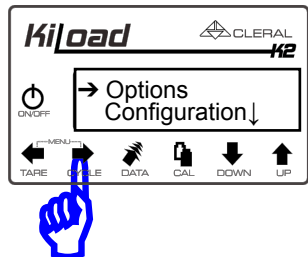
It is important to exit the Freeze mode after calibrating, Empty or Full.

# Options menu

Enter the Options menu to change any Kilo load option



To enter the Options menu Press simultaneously Left & Right Arrow.



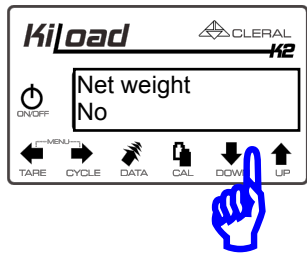
When the cursor shows Options. Press the right Arrow to enter the menu.

Once in Options, here is what you will see by scrolling down:

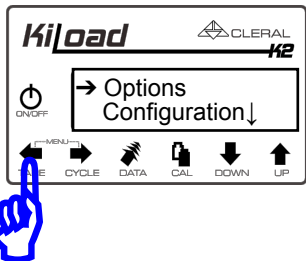
- Options
- Net weight
  - Language
  - Weight unit
  - Increments
  - Tons
  - Cycle time
  - Auto tare
  - Digits
  - Screen saver
  - Light
  - RS232
  - Target
  - Target weight
  - Pause

Each of these sub-menus is explained in the following pages

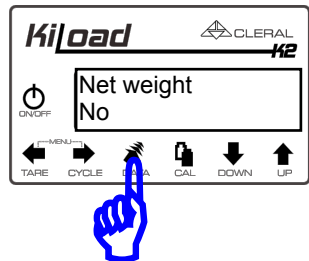
Navigating in the Options menu:



To reach a sub-menu, press on up or down arrow.



Back to menu, press Left Arrow.

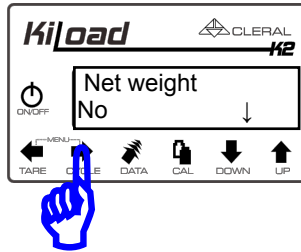


To exit at any time press the DATA button.



# Gross or Net weight

Gross weight displays the weight of the vehicle AND its payload. The net weight will only display the payload.



Press right arrow to switch from No to Yes.

Data to exit.

## Note!

Here is the difference between Gross and Net with an empty

T : 16000		
A: 13000	B: 3000	

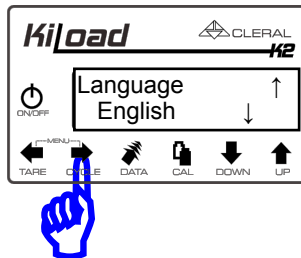
**Gross**

net T : 0		
A: 0	B: 0	

**net**

# Language

Kiloal can display in either English or French.

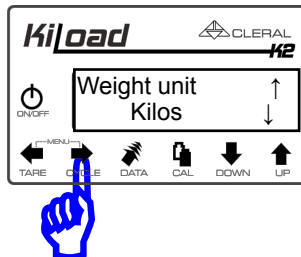


Press right arrow to switch from French to English.

Data to exit.

# Units

You can display the weight in kilograms or pounds. If you swap from one to the other, the conversion will be automatic.

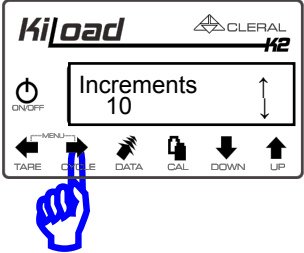


Press Right arrow to switch from Kilos (kilograms) to Pounds.

Data to exit.

# Increments

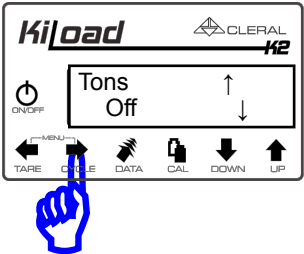
You can display weight by increments of 10's or 100's.



Press on right arrow to switch from 10 to 100.  
Data to exit.

# Tons

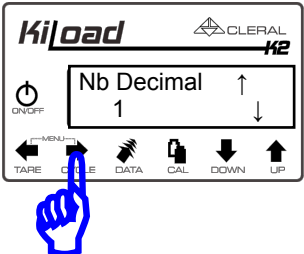
You can also choose to display Tons.



Press Right arrow to switch from Imperial tons to Metric tons.  
Data to exit.

# Ton decimal point

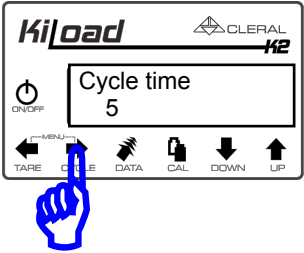
You can choose the number of decimals to be displayed.



Press Right arrow to switch from 0, 1, or 2.  
Data to exit.

# Cycle time

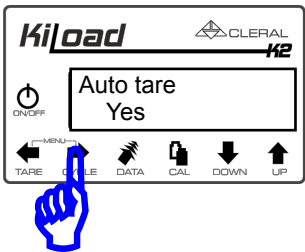
You can choose how long you want each channel to be displayed when in Cycle mode. In seconds.



Press on right arrow to select from 1 to 15 seconds.  
Data to exit.

# Automatic Tare (Zero)

This allows the automatic zero (tare) to be done when recording empty weights. It is important to know that the Zero will automatically performed as soon as the weight is change. Even if as little as 10 lbs.

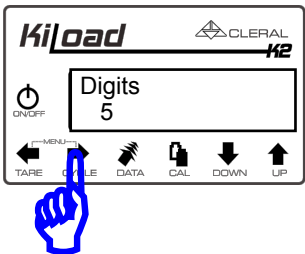


Press on right arrow to switch to Off.

Data to exit.

# Digits

If the total weight exceeds 100,000, it is necessary to change the display from 5 to 6 digits.

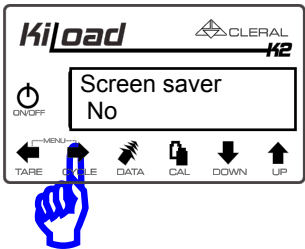


Press right arrow to switch from 5 to 6.

Data to exit.

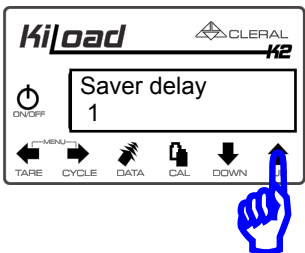
# Screen Saver

Screen shuts off after a given time. Time will start after the touch of any button.



Press on right arrow to switch to Off.

If you choose yes, you must select how many minutes before shut off.



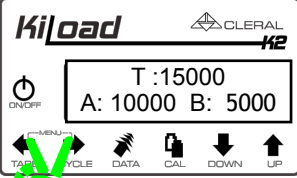
Press on arrow to select the sleep time between 1 and 60 minutes.

Data to exit.

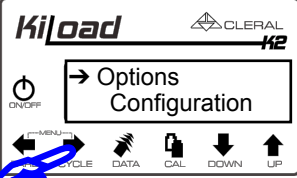
Pressing any button at any time, while in sleep mode, will turn on the screen.

Light option

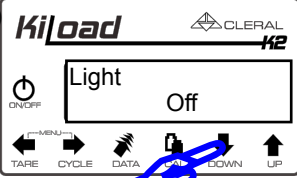
①



②



③

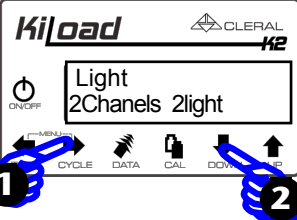


To configure the light option, you must go to the menu option by pressing simultaneously on the Left and Right arrows.

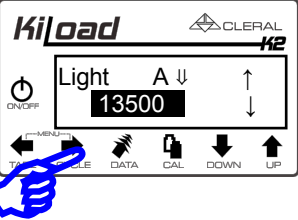
The cursor shows the Option menu. To enter this menu, press the right Arrow.

With Down Arrow, scroll to the menu Option Light.

④



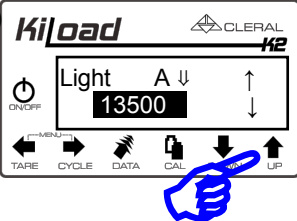
⑤



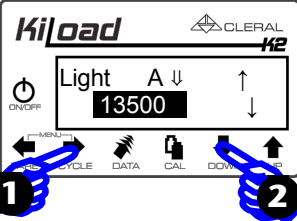
1- Use the right arrow to select the desired mode.  
2- Use down arrow to adjust all 3 limits.

Press right arrow. Limit will flash.

⑥




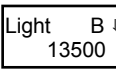
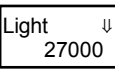

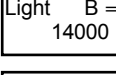
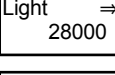

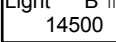
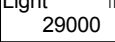
⑦



Use arrows to adjust limits.

1-Press right arrow, limit stops flashing.  
2-Press down arrow to reach next limit. Repeat the same steps for each limit.

The following are the limits to be adjusted per desired mode.

	Limit channel A	Limit channel B	Limit Total
Minimum limit starts flashing light	 <div>Light A ↓ ↑ 13500 ↓</div>	 <div>Light B ↓ ↑ 13500 ↓</div>	 <div>Light ↓ ↑ 27000 ↓</div>
Maximum limit. Lights remains on	 <div>Light A ⇒ ↑ 14000 ↓</div>	 <div>Light B ⇒ ↑ 14000 ↓</div>	 <div>Light ⇒ ↑ 28000 ↓</div>
Limit where light turns off	 <div>Light A ↑ ↑ 14500 ↓</div>	 <div>Light B ↑ ↑ 14500 ↓</div>	 <div>Light ↑ ↑ 29000 ↓</div>

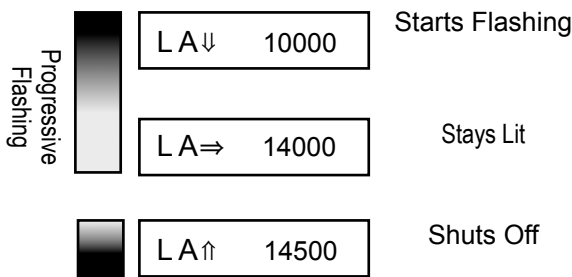
Available light mode configurations.

4 Different light mode configurations are available:

- No : Non activated light mode.
- 2 Ch 2L : Individual lights per Channel A and B with their respective limits.
- 2 Ch 1L : One light for Channel A and B with their respective limits. The light will start flashing when either one of the limit is reached.
- Total : The light starts flashing when the TOTAL weight is reached. Also used for systems with more than 2 channels.

Configuring weight limits

You need to enter three weight limits. The first one is the weight at which you would want to start the light to start flashing. The second is, the weight at which you want the light to stay lit. The third is the weight which you want the light to turn off. The closer you get to the second weight, the faster the light will flash. When the light stays lit, this is when you want to stop loading because if the light turns off on its own, you are OVER the weight limit. The following legend shows the progression.

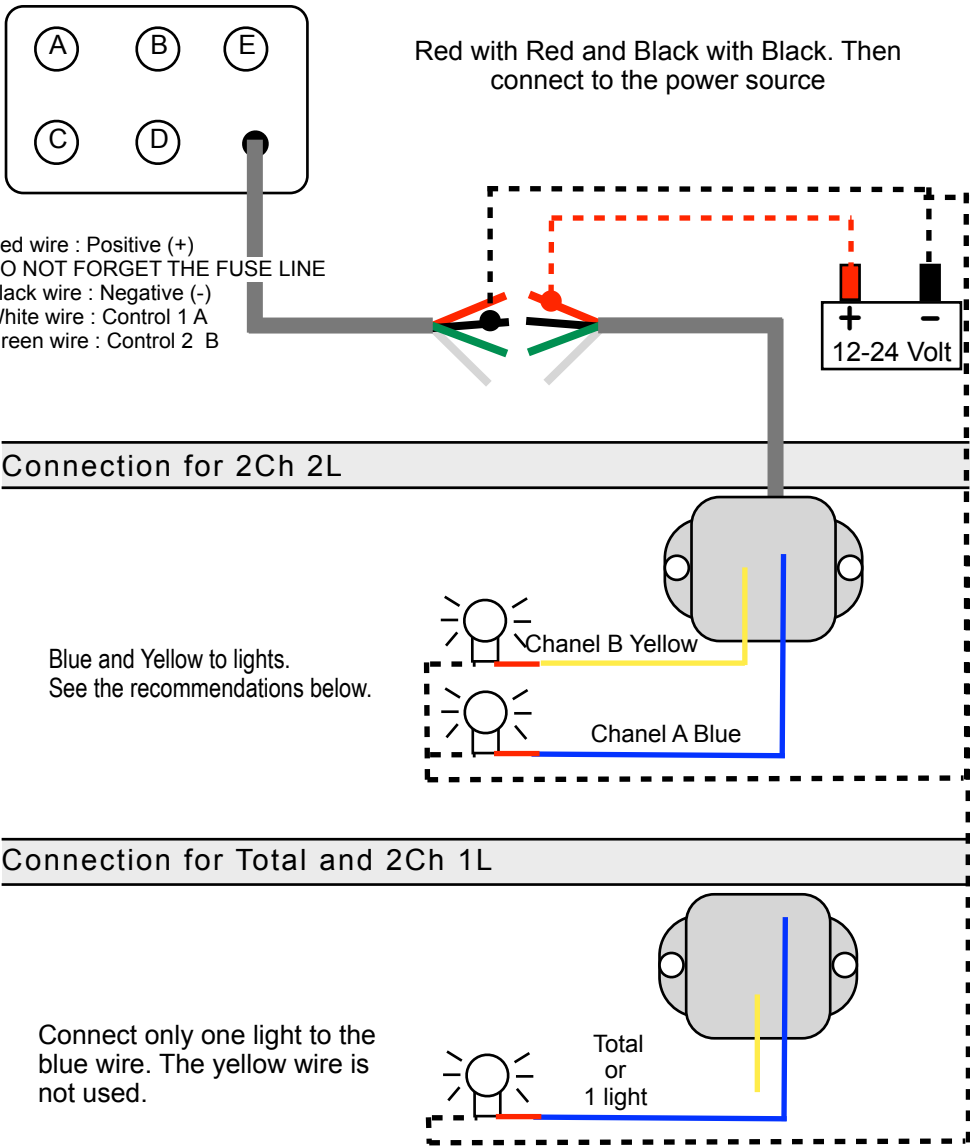


**NOTICE!**

The letter L indicates Light the following letter indicates the channel ; A for Channel A , B for Channel B and T for Total.

# Light (Alarm) module connections

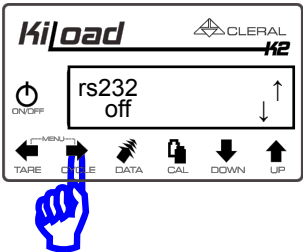
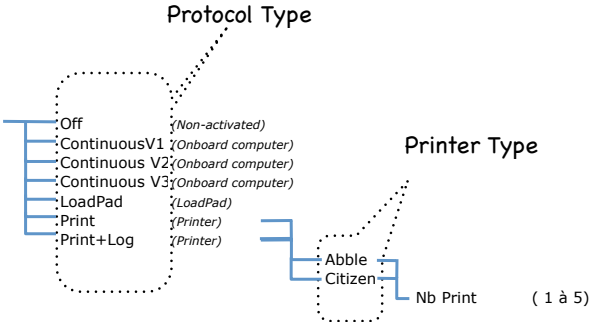
The external module is connected to the Kiload with a 4 conductor cable. As for the 2 conductor cable, the blue and yellow wires are used to connect to the lights.



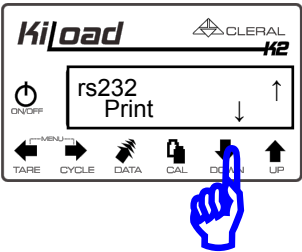
# RS232

This function enables RS232 communication using different protocols.

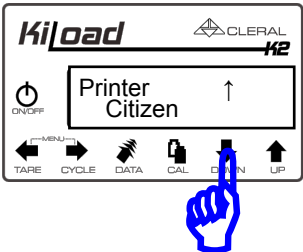
Here is the RS232 sub-menu. You must choose your protocol depending on the application. If your choice is to print, you must select the printer type and number of copies printed.



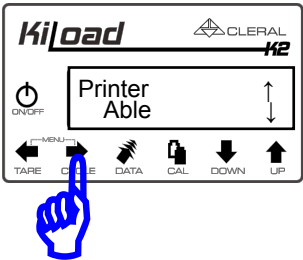
Press the right arrow to activate and select the communication protocol.



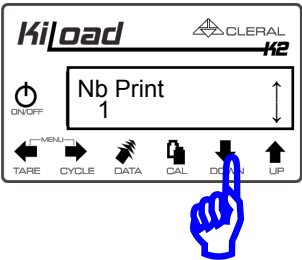
If you want to select Print, press the down arrow when in the menu.



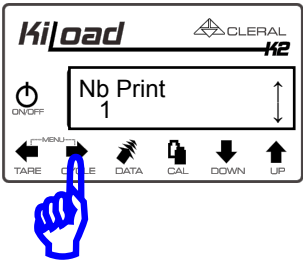
Press down arrow to select Able or Citizen.



Press right arrow to confirm Able or Citizen.



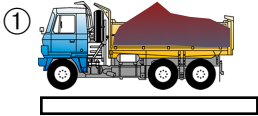
Press down arrow to select number of copies.



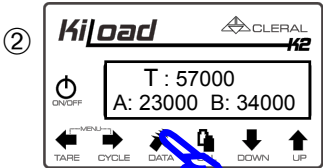
Press right arrow to confirm the number of copies 1 to 5. Data to exit.

Print+log

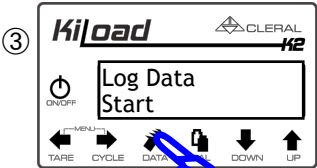
The Pint+Log function allows you to print the weight difference between two loading points. This delivery management option can be used for loading or unloading.



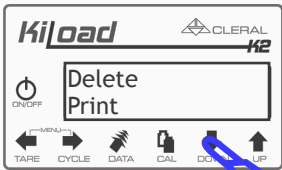
Before unloading, immobilize the vehicle on a flat surface.



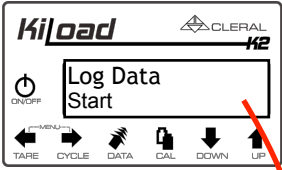
Press Data to register the actual weight before unloading.



The START weight will appear. Press Data if OK.

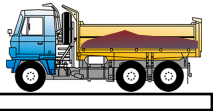


If the weight recorded is not OK, you can removed from memory or print the current weight supported.

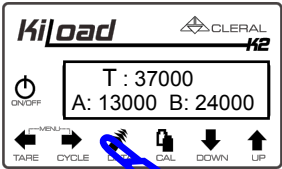


The following message will appear confirming the registration. Subsequently, the current actual weight will be displayed.

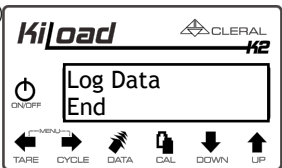
T : 57000  
A: 23000 B: 34000



Immobilize the vehicle on a flat surface after a weight change.

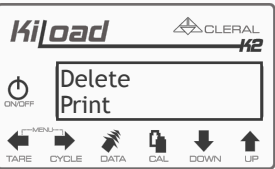


Press Data if the End weight is OK.



End weight registration appears. Press Data if all is OK.

Truck #225	
Data register	
Date M/J/A : 01/01/12	
Time : 03:15:09	
Number of channels 2	
Units: kg	
Channels	Gross
-----	
A	10000
B	10000
-----	
Total	20000

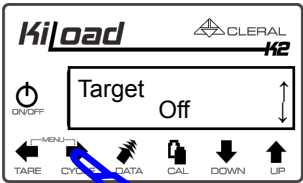


If the weight recorded is not OK, you can removed from memory or print the current weight supported.



# Target

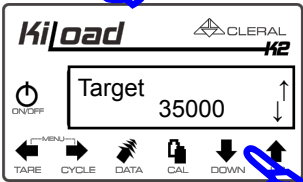
To be functional, this option must be ordered when purchasing the device. This menu activates the Target. This option activates a switch according to a target weight.



Press right arrow to toggle from Off to On  
Data to exit.

## Target weight

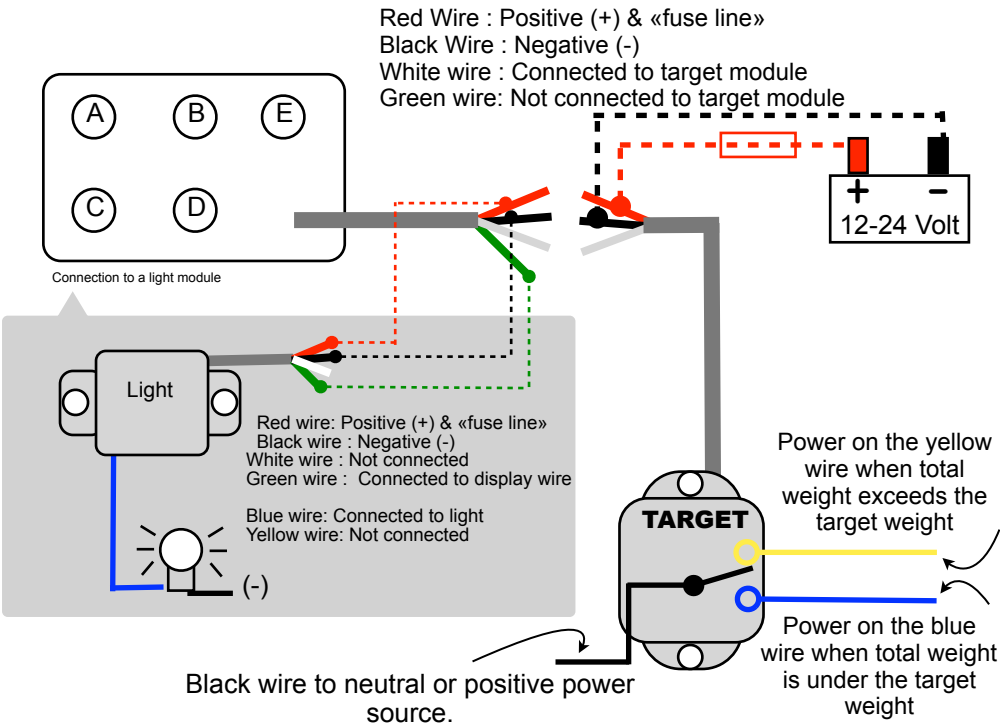
This function adjusts the target weight which should activate the switch.



Use the arrows to adjust the weight.  
Data to exit.

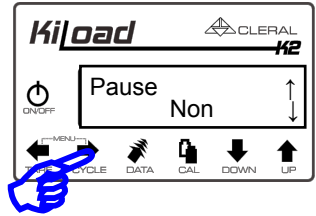
## Target module connection

To be functional, this option must be ordered when purchasing the device. The target module is used to enable or disable a device according to a target weight.

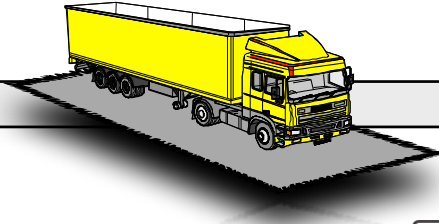


# Pause

PAUSE function (Pause) freezes the weights of the channels between the point of activation and deactivation. For example, if you enable Pause and the displayed weight is 30,000, when you break off the next day and there was thermal drift and the weight could have changed the weight displayed will always be maintained at 30,000 with the Pause activated.

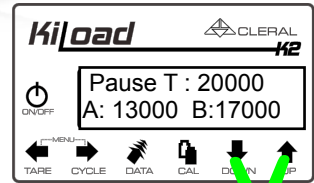


## ACTIVATION



STEP : 1  
Park on flat ground

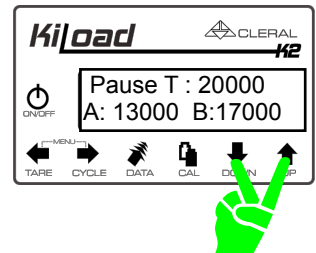
STEP : 2  
Press and hold simultaneously on both arrows for 5 seconds. Pause will be displayed.



## DEACTIVATION

STEP : 1  
When the Kiloal is Paused. You can move freely without changing the weight data.

STEP : 2  
To deactivate Pause, park on flat ground and press and hold simultaneously on both arrows for 5 seconds. No matter how much the sensor values have changed, the weight readings have remained the same as when you had performed the Pause.

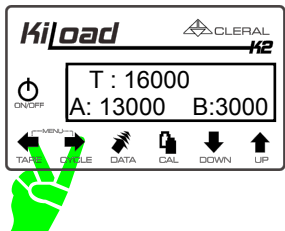


### NOTE!

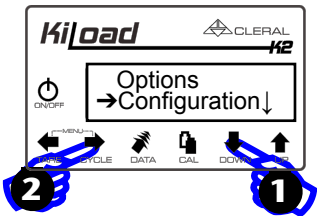
Make sure to follow all the steps. No doing so can change the calibration data.

# Configuration Menu

The Configuration menu lets you adjust the instruments configurations.



To enter the configuration menu, simultaneously press Left and Right Arrow.



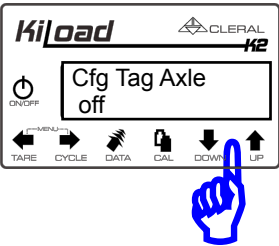
Use the down arrow to move the cursor to Configuration and press Right Arrow to enter the menu.

Once in Configurations, here is what you will see by scrolling down:

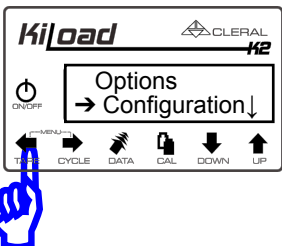
- Configuration
  - Tag axle
  - Software Swap Channel
  - Virtual steer
  - Tare Channel
  - Configuration
  - Set Limits
  - Hide MinAir
  - Hide N/A
  - Set Date/Hour
  - Kilo load Name
  - Safety Menu

Each of these sub-menus is explained in the following pages

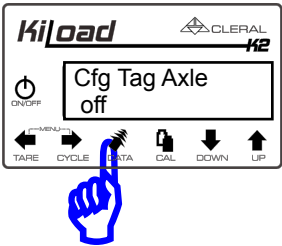
Navigating in the Options menu:



To reach one of these sub-menus, simply press repeatedly on the Up or Down arrows.



Use the Left arrow to move backwards in the menu.



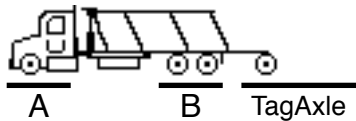
Press Data at any time to exit.

# Tag Axle

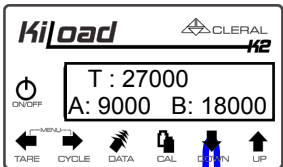
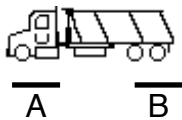
The Tag Axle configuration enables the display of the weight of the rear axle when it is down. The weight of the axle is equal to the weight loss of channel A and B.



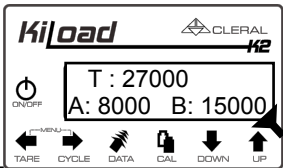
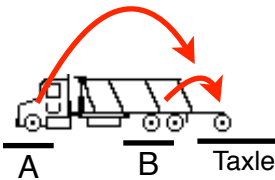
**IMPORTANT**  
Press on right arrow to switch from No to Yes.  
  
Data to exit.



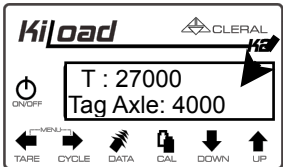
## Using Tag Axle



Before lowering the tag axle, press the Down arrow to activate the tag option.



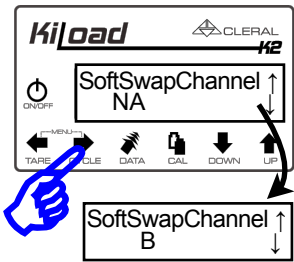
During this operation the Total weight does not change. The weight being lost by channels A and B together are displayed in the tag axle.



When raising the tag axle, press the Up arrow to deactivate the Tag option.

# Swap Software

This function allows the swapping of multiple semi-trailers to the tractor without requiring recalibration. There is an availability of 12 memories. A single channel can be stored at a time.

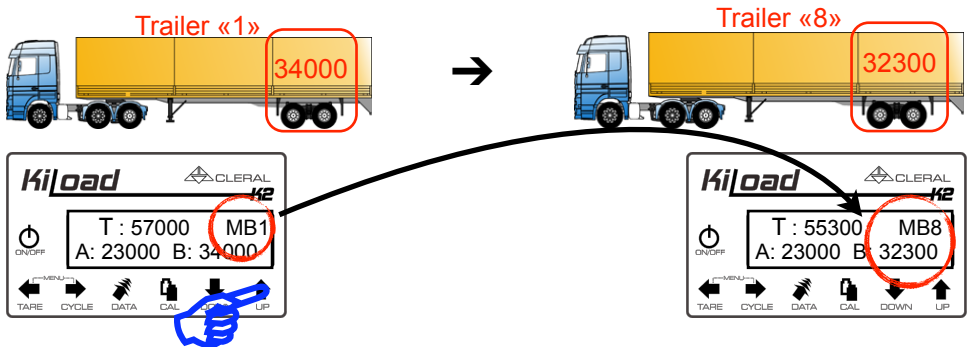


To activate a channel  
Press right arrow repeatedly to activate the function and select the channel to memorise.

Data to exit.

## Using the SWAP software

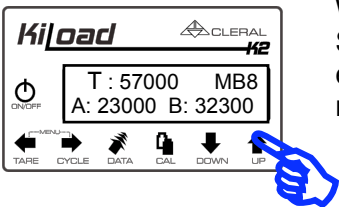
Once you have activated this function, information appears in the right corner of the display MB1. M is for memory, B is the channel for which the data is stored and 1 is one of 12 memories.



If you want to hook up another trailer (ie # 8). Press the arrows to select the memory allocated to the trailer MB8. Once you change the memory, the device shows new weight data according to the calibration data stored for this trailer.

## Calibrating SWAP Software

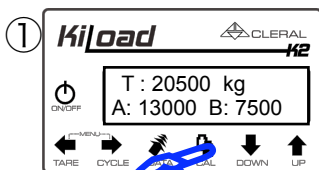
To calibrate, simply select the memory assigned to the trailer and proceed as usual. The data stored can be exported to other monitors.



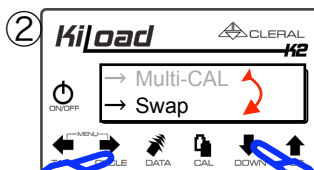
With the arrow, select the memory. Subsequently to calibrate the trailer as explained on page 8 and 9. This must be repeated for each trailer.

## Acquiring or modifying calibration Data in SWAP

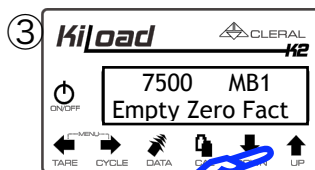
When the trailers are calibrated with a monitor, it is possible to collect data (Empty Weight, and Factor Zero) on this monitor and record them in another.



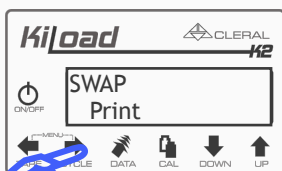
Press CAL to enter calibration



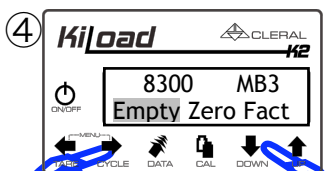
The cursor pointing empty,  
1-Press Down arrow repeatedly to move the cursor to swap.  
2-Press the Right Arrow to enter the menu.



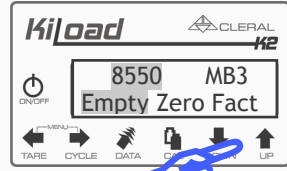
Press Down or Up arrow to select desired memory to **read or modify**



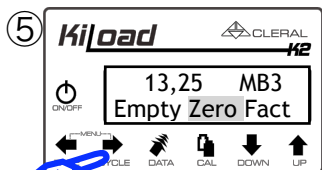
If you go to the end of the selected memory, the following message will appear. If you have a printer, press Right Arrow. All the data of all 12 memories will be printed.



Press Right arrow Empty Data will blink. You can note the data.

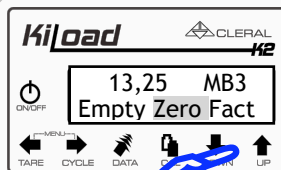


Press Up or Down arrow to register or modify the new data.

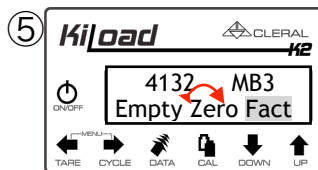


Press right arrow to move on to the next data. Zero blinks.

You can record it.



Press the Up or Down arrow to change or save the new data.

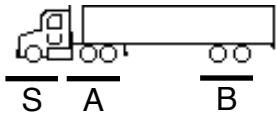


Press right arrow to move on to the next data. Factor flashes.

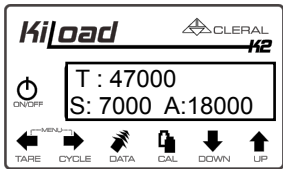
You can record it.

# Configuration Steer

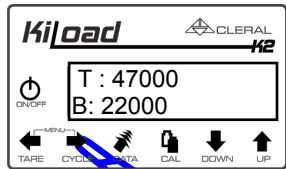
The steer configuration enables the display of the virtual weight of the steering axle of a tractor-trailer. The virtual axle weight is calculated in proportion to the weight applied to the channel A. The total weight of the tractor is divided between the drive axle group and steering axle (virtual S).



Press on right arrow to switch from No to Yes.



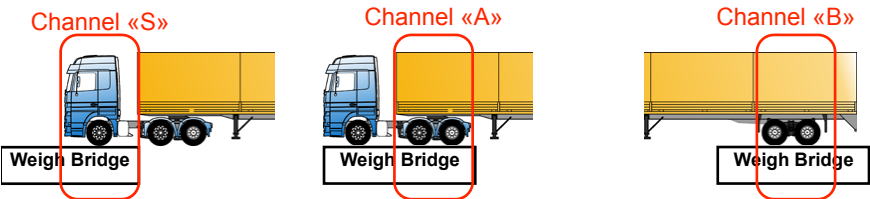
When this feature is enabled, the following is displayed as the virtual weight of the steering axle.



To see the weight on the B channel press cycle.

## Note!

If you use this feature, you must recalibrate your steering and drive axles separately. Refer to the section: Acquiring instrumented or virtual steering weights.

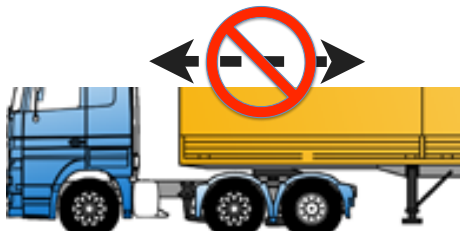


## Note!

If you use this function and you switch to off, the S channel data will be reported on Channel A.

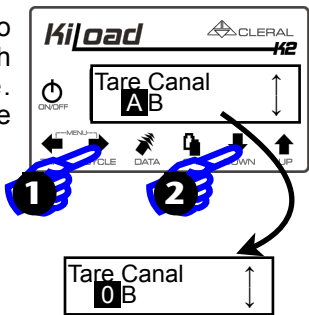
## Note!

If you use a sliding fifth wheel, remember that if you change its position, your data will be incorrect. To correct the situation, you need to recalibrate your Kiload by returning the fifth wheel to its original position.



# Channel Tare

This feature allows you to select channels on which the Tare will be made. Originally, all channels are enabled for Tare.



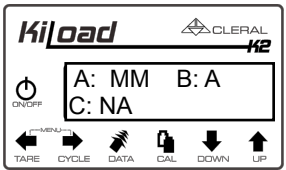
# Configuration

This menu shows the configuration of the factory set Kiloard. In this example, Channel A would Be instrumented with two mechanical sensors, channel B would be instrumented with an air sensor and channel C is Not Activated. In the box where a channel with instrumented Flexmeters would be, you would see a capital F for regular flexmeters and the letter L for small flexmeters.

## To de-activate a channel

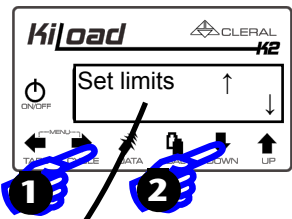
- 1 - Press Right arrow to select the channel. That channel will flash.
- 2 - Press DOWN arrow to set it to 0 (Off).

Data to exit.



# Adjusting Limits

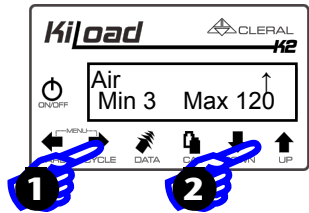
This configuration sets the minimum and maximum limit at which the error message will be displayed for each sensor type. The original limits are already established. To change only in special cases.



## Select the sensor

- 1 - Press Right arrow to enter the menu.
- 2 - Press DOWN arrow. All following menu will scroll whenever you repeatedly press the down arrow.

Air	Min 3	Max 120
Mec	Min 125	Max 270
Flx	Min 10	Max 80
Hyd	Min 0	Max 5500
Ltl	Min 10	Max 80



## To modify a limit

- 1 - Press Right arrow to enter the limits to change.
- 2 - Press Down or Up arrow to change the limit.

Data to exit.



## Hide MinAir

This function hides the channel when the sensor falls in MinAir. The MinAir is determined using the minimum limit (see Adjust Limit)

This feature mainly used on lift axes.

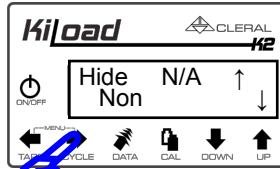


Press Right arrow to change No to Yes.

Data to exit.

## Hide N/A

This function hides a channel if it is «not applicable».



Press Right arrow to change No to Yes.

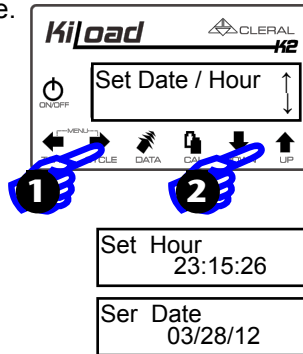
Data to exit.

## Adjust Date /Time

Lets you edit Date and Time.

### To change the settings

Press Right arrow to select each digit of the setting  
Press Up or Down arrow to adjust the settings.



### Selecting the setting

1 - Press Right arrow to enter the menu.  
2 - Press Down arrow. The following menus will scroll as you press Down arrow.

## Naming Kiload

This allows you to name the K2. The identification will appear on print tickets.



### Selecting the settings

Press Right arrow to enter the menu.

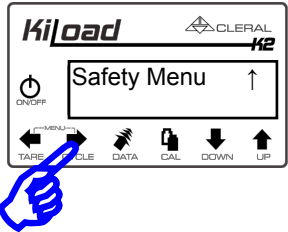
### To edit name

Press Right arrow to select each of the identifiers of the name.

Press Down or Down arrow to change the digit.

# Safety Menu

The Safety menu allows you to block the access to different operations of the K2.



Press Right arrow to enter menu.  
Data to exit.

If the lock is not enabled, the original password is 0000.



To enter the password  
1- Press Right arrow to select the digit to edit.  
2- Press Up or Down arrow to change the digit.

When you enter the password and it is successful, the following message appears:  
Password OK!

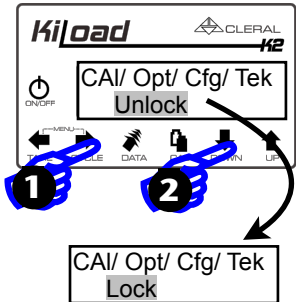
If you make a mistake in the password the following message appears:  
Password Error!  
3521

## Forgotten Password!

The code that appears in the ERROR PASSWORD message allows you retrieve your password by giving this code to the retailer or manufacturer.

# Calibration lock

You can lock four menus simultaneously. (Calibration, Options, Setup, Technician).



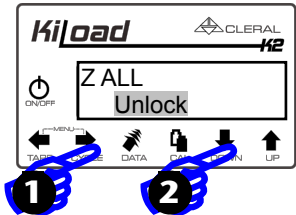
- 1 - Press on Right arrow to switch to Open Origin Lock.
- 2 - Press Down arrow to go to the menu Z all Data to exit.

## IMPORTANT!

The Zero should not be locked. The usefulness of this function allows to perform zero of any empty vehicle. This is used on mechanical sensors where important thermal drifts occur.

## Locking Z ALL

Locking Z ALL, will lock the Zero option. Therefore, no possibility of zeros in empty or full.

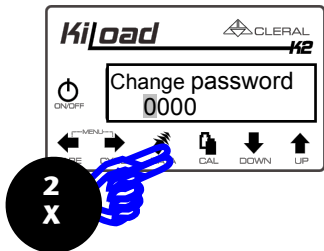


- 1 - Press on Right arrow to switch to Open Origin Lock.
- 2 - Data to exit.

## When exiting

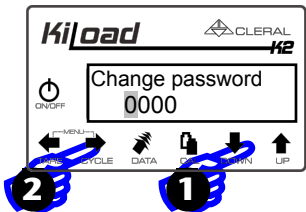
Upon exiting Password, you will see the menu "Change Password". At this point, you can change your combination for a new password or maintain the same combination.

### To not modify



Press Data two times.

### To modify



- 1 - Adjust each digit using the Down and Up arrows.
- 2-Press on Right arrow to jump from one digit to another to exit.

# Using a Locked K2

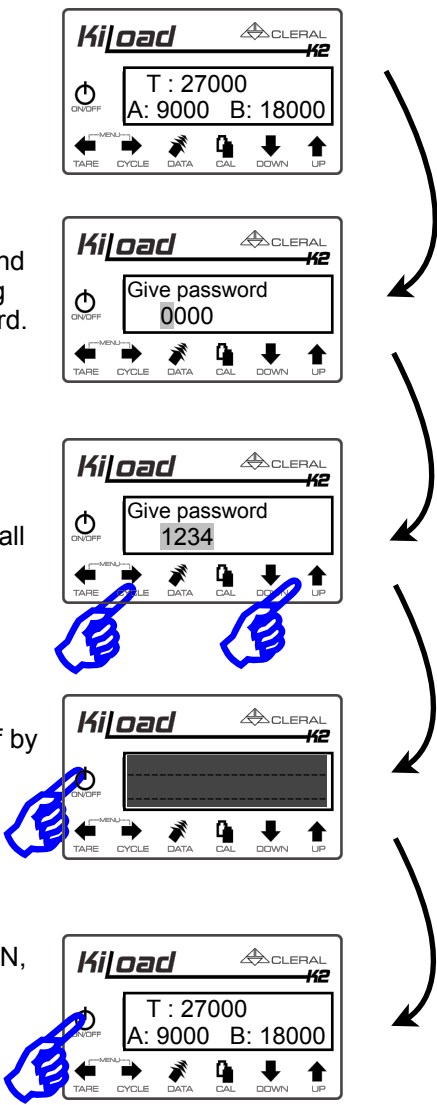
If you lock your monitor, remember that you must unlock your device before any change and lock it again after the change. You can still view the data when the lock is on.

If you go through the menus and request a feature, the following menu will ask for your password.

Once you've entered your password you have access to all menus.

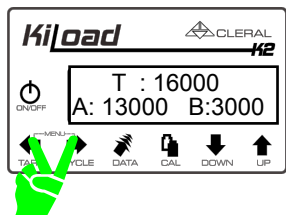
When finished, turn the unit off by pressing Off.

Once you turn your K2 back ON, it is locked again.

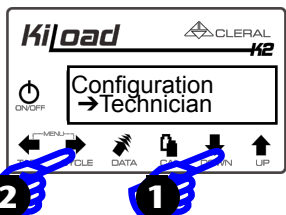


# Technician Mode

Technician menu provides access to technical data of the device and for adjusting the factors and zeros of the unit.

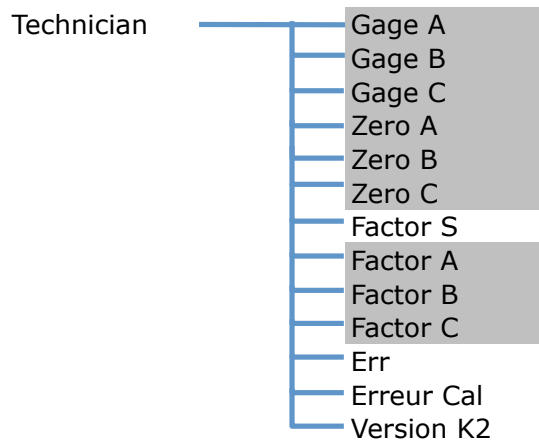


Press Cal and Cycle simultaneously to enter the Menu.



1 - Press on down arrow repeatedly to reach Technician. 2 - Press Right arrow to enter the menu.

Here is the order of what is in the Technician Mode.

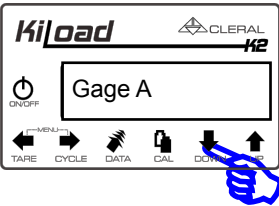


Each of these sub-menus is explained in the following

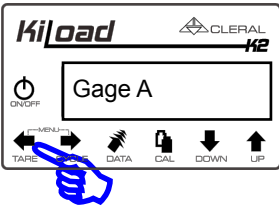
**Note!** The menus in gray are only displayed if the channel is activated.

Visible if activated channel

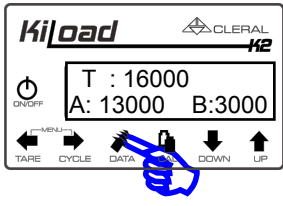
Navigating in this menu:



To reach one of these sub-menus, simply press the button Down arrow repeatedly.



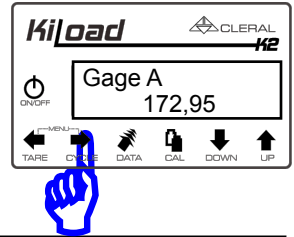
Back to menu, press Left Arrow.



To exit at any time press Data.

## Gage A / B / C / D / E

Menu allows the display of live sensor readings. Gage followed by a capital letter shows the average sensor reading for a given channel. To display individual sensor readings, press the Cycle arrow.

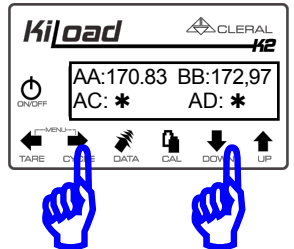


## Individual sensor readings

Individual sensor readings are displayed in the Gage menu. The first letter indicates the channel and the second letter indicates the sensor on the channel. So AB means the sensor B to channel A. If there is just one sensor, the measurement displayed in Gage will be identical to the average, which is normal because the average is 1. An asterisk (\*) indicates that there are no activated sensors in that position.

If there is no gage reading, an error code ( ! or ? ) will be displayed.

Pressure reading will be displayed even in No Air condition.



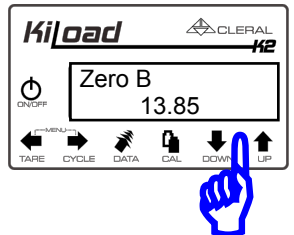
Right Arrow to enter the menu Gage and Down Arrow or Up to the next menu.

## Zero A / B / C / D

The «Zero» is the initial gage reading when calibrating the empty vehicle. After a calibration, each channel has its own «Zero»

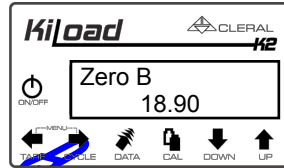
### Note!

Once the calibration is completed, the gage value of each channel, with an empty vehicle, must be the same or very close to the initial Zero.

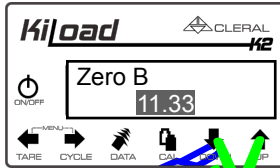


You can adjust the Zero manually on each channel. You can lower, raise, even bring it back to zero. However remember that each time you adjust it, you modify your calibration.

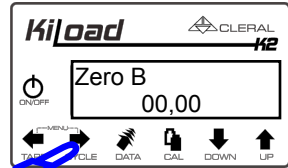
## Adjusting Zeros



Press on Right arrow instead. The number will flash.



To change the zero, use the Down or Up Arrow. To Zero, press simultaneously on the two arrows



To change the zero, use the Down or Up arrow. To Zero, press simultaneously on the two arrows.

## Average gage values

The following are average gage readings that you should see as your starting point reference. The sensors or transducers should be adjusted between these starting point values when the **vehicle is empty**.

Air transducer:	between 10.00 and 20.00 PSI
Mechanical sensor:	between 130.00 and 170.00
Flexmeter:	between 20.00 and 40.00

### NOTE!

If the vehicle is equipped with a grapple or crane, the values may differ.

### The following are average heavy vehicle gage values.

Air transducer:	between 50.00 and 150.00 PSI
Mechanical sensor:	between 200.00 and 325.00
Flexmeter:	between 60.00 and 90.00

## IMPORTANT

### Cannot enter full calibration weights?

If you enter heavy weight values in the EMPTY CAL with a loaded vehicle, an automatic Zero will be performed by the unit. When this happens, operators usually realize that it is not possible to enter the heavy weight numbers.

## ERROR CODES

### No AIR

This error code indicates that the sensor does not detect pressure in the air transducer. No Air code is triggered if the pressure is below the selected limit. See Limit No Air. Physically verify that there air pressure reaches the transducer. If there is no pressure, find the source of the problem. If there is pressure and it is not detected by the transducer, make sure that everything is connected and powered. If the problem persists, consult you local dealer.

### Unstable air pressure readings

When in Gage reading, if the air transducer relays unstable readings that gradually go down to raise after a while, you may be in the presence of an air leak. Find and repair the leak(s). The leaks makes the reading go down and when the compressor reacts, the readings will raise again.

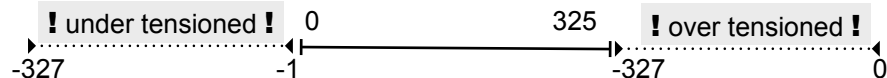
### Non repeatable air pressure readings

In most cases the problem comes from a faulty height leveling valve. To check if your valve is ok, in gage reading mode, dump and fill the suspension at least ten (10) times. If the air pressure does not repeat within 0,5 psi, check and replace or repair the faulty valve.

### Mechanical sensors : !A !B !C !D !E

Exclamation mark !A !B !C !D !E will appear in the following conditions:

- The cable end (nipple) is not well attached to the mechanical sensor.
- The mechanical sensor is under or over tensioned. The exclamation point will appear if the gauge reading is outside the range 0 to 325.



### Mechanical sensors : ?A ?B ?C ?D ?E

Question mark ?A ?B ?C ?D ?E will appear in the following conditions:

- The sensor cable is not connected to the unit.
- The sensor cable is cut.

### Code N/A

**N/A** Indicates that the channel is not activated. At system start-up, this code will appear for the non activated channels.

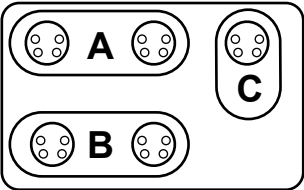


**Code OVER**

OVER will appear if the the weight readings exceed 99999 for a given channel or Total weight. It is theoretically impossible to reach the maximum limit. If it does happen, check the zero, the factor, or the empty weight of the channel indicating the error code.

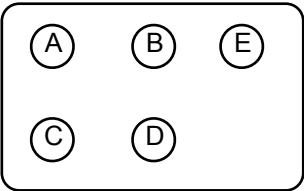
**Channel position**

The diagram on the right shows the position of the 3 possible channels of a Kiloal. Channels A and B regroups 2 transducers and channel C only one. The channel C transducer can be combined to either channels A or B.



**Sensor position**

The diagram on the right shows the positioning of the sensors/transducers.



**Kiloal Connector types**

Mechanical Sensor : (stress measurement)



Air Transducer : (Air pressure in PSI)



Flexmeter: (Distance measurement)



Mini Flexmeter: (Distance measurement)



LoadPad and printer: (communication RS-232)



Hydraulic Sensor(stress measurement) or



RS485 output; ( communication RS485) or



SIM control: (SIM control).



# Factors

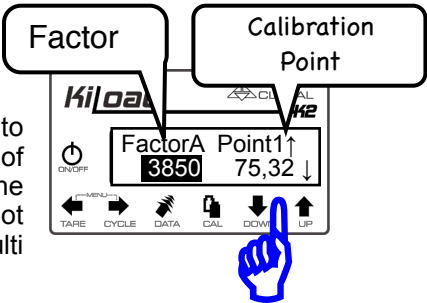
The factor is the coefficient multiplied with the Gage less its zero that produces the weight of a channel.

Channel A weight = ((GA-ZA)\*FA)

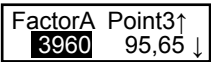
## Note !

You can manually adjust the factor on the channel. You can increase it, decrease it or reduce it to zero. However, remember that this changes your calibration.

When the factor is flashing, press the arrows to change the factor in Point 1. A means the factor of channel A. The S is for the virtual channel of the steering axle. You can change the factor, but not the calibration point. If you do not activate the multi point calibration only this one is editable.





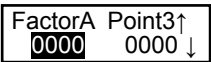
To change the factor of Point 2 and 3, press the Right arrow. Thereafter, use the Up arrow to go to the next calibration point and repeat the same procedure described above to change the factor.



## Tip !

If the numbers and factors in the calibration point are zero, the full weight of the channel is not calculated. The weight displayed will be the empty weight.  
Channel A weight = ((ZA-GA) \* (FA = 0))

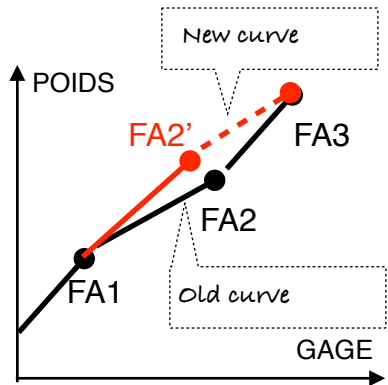
To make the factor 0.00 and the reference point, press simultaneously on the two arrows   .



# Multi-point Factor

In the multi-point calibration if you want to delete a factor and its calibration point, just go to that specific calibration point and reset. The factor will disappear automatically. Refer to previous instructions.

In the multi-point calibration, you erase a factor or factors specifically to redo calibration points that have similar weights to the point that just reset. It is recommended in cases where the calibration is questionable to erase all three calibration points and recalibrate.

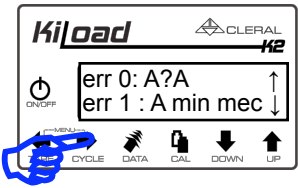


In our example, the operator noticed an inaccuracy in the middle load. In this case, he resets the FA2 and FA3 and redoes the calibration close to these limits. There will be two new calibration points and FA2' and FA3. The new curve will pass through: FA1 - FA2 '- FA3. If the error point would have been FA1, it would be necessary to delete all three factors and redo a complete calibration again.

# Error Registry

The error registry indicates the last 20 errors. When the cursor is pointing error press the Right arrow repeatedly to see the last 20 errors.

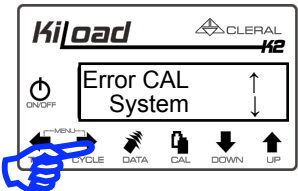
When you are finished viewing the registry, you can delete all the registry by simultaneously pressing the two arrows .



# Error Cal

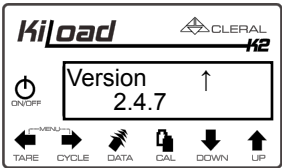
When the monitor displays an error code, it is not possible to calibrate when the function is in System. If the function is on Channel, it is then possible to calibrate the channels that are not in error code.

When the cursor is on Err Registry press the Right arrow to select Channel or System.



# Version

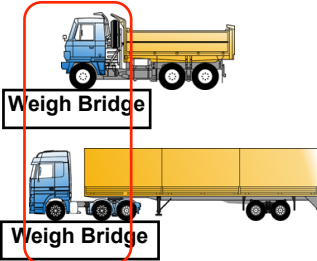
Displays the Version of the software.



# Precision problems?

It is easy to detect a precision problem on the total gross weight. However we need to pin point the source of the problem in order to fix it. In other words, we need to know from which channel the error is coming from.

Channel «A»



Weigh Bridge

Channel A Empty

Kiload Weight \_\_\_\_\_

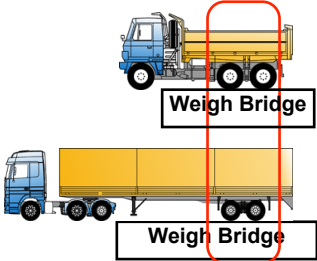
Weigh Bridge \_\_\_\_\_

Channel A Full

Kiload Weight \_\_\_\_\_

Weigh Bridge \_\_\_\_\_

Channel «B»



Weigh Bridge

Channel B Empty

Kiload Weight \_\_\_\_\_

Weigh Bridge \_\_\_\_\_

Channel B Full

Kiload Weight \_\_\_\_\_

Weigh Bridge \_\_\_\_\_

The first step is to compare the Kiload and Weigh Bridge empty weights per channel

Note and compare the empty weight for each channel. If there is a significant difference, proceed to adjust the empty weights as previously explained. Make sure that the vehicle is empty when adjusting empty weights.

Then we compare the heavy weights for each channel. If there is a significant difference, proceed to adjust the heavy weights as previously explained. Make sure that the vehicle is full when adjusting full weights.

If the error is still there, repeat the previous steps to confirm that you have found the source.

**Note!**

Follow the same steps for each additional channel.

Before calling your local Cleral dealer, make sure to write down all of the data that is stored in your Kiload. The technician will surely need the information.

Suspension configuration  
Empty weights  
Heavy weights  
Zero's

MAKE SURE TO WRITE DOWN THE DATA FOR EACH CHANNEL.

Factors  
Version and Revision

The best way to get service is to call the technician while you are safely parked and in a position to manipulate your Kiload.

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There are no vertical margin lines, and the page is completely blank except for the lines themselves.

## Authorised Cleral Dealers



CLERAL INC.  
90, des Distributeurs  
Val-d'or (Quebec) Canada  
J9P 6Y1  
Tel: (819) 825-5553  
fax: (819) 825-5556  
email: [info@cleral.com](mailto:info@cleral.com)  
Web: [www.cleral.com](http://www.cleral.com)